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Revised tribal classification of various genera of Trypetinae and Ceratitinae, and the description of a new species of *Taomyia* Bezzi (Diptera: Tephritidae)

by

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Taomyia mauritiana **sp. nov.** is described from Mauritius. A key to the species of *Taomyia* Bezzi is provided, together with an improved key to the Afrotropical genera of Trypetini. The taxonomic relationships of several genera and species of Trypetinae and Ceratitinae are discussed and new host records presented. *Ceratitis pycnanthi* (Ghesquière) is transferred from subgenus *Pardalaspis* Bezzi to subgenus *Ceratalaspis* Hancock, whilst *Myoleja fossataeformis* (Bezzi), **comb. nov.** and *Myoleja inconspicua* (Hancock), **comb. nov.** are transferred from *Euleia* Walker. *Cycasia* Malloch is placed as a new synonym of *Ornithoschema* de Meijere.

INTRODUCTION

Recent examination of material in the National Collection of Insects, Plant Protection Research Institute, Pretoria has provided taxonomic and host plant data of value in determining relationships of several taxa of Trypetinae and Ceratitinae (Tephritidae) from the Afrotropical Region. A previously undescribed species of *Taomyia* Bezzi was also located in the collection, necessitating a modification of the key to Trypetini genera proposed by Hancock (1986).

Several recent papers by Hardy (1986a, b, 1987, 1988) and Norrbom (1987, 1989, 1990) have helped clarify some of the tribal relationships amongst the genera of Trypetinae, previously outlined by Hancock (1986). These are discussed below.

Subfamily CERATITINAE

For earlier notes on classification and keys to African genera and subgenera in this subfamily see Hancock (1984, 1985a, 1987).

Tribe Ceratitini

Ceratitis (Ceratitis) antistictica Bezzi

This species was referred to subgenus *Ceratitis* MacLeay by Hancock (1984). The superior orbital bristles of males are red-brown, with the lower bristle a little thickened and more or less vertical in orientation. This arrangement is similar to that

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seen in *C. cornuta* (Bezzi) and supports the continued placement of *C. antistictica* in this subgenus.

Ceratitis (Ceratalaspis) cosyra (Walker)

The host 'Sakoa' recorded for this species in Madagascar (Hancock 1984) is *Sclerocarya caffra*, a common host in Africa (R. Paulian, personal communication).

Ceratitis (Ceratalaspis) pycnanthi (Ghesquière)

This species was retained in subgenus *Pardalaspis* Bezzi by Hancock (1984) but it properly belongs in subgenus *Ceratalaspis* Hancock. It has largely yellow wing bands, an unspotted abdomen, no silvery markings on the frons, arista with long pubescence, one mesopleural bristle, distinct mesonotal spots and black-spotted humeral calli.

Xanthorrhachista alata (Becker)

This species has been bred from a yellow-fruited *Solanum* sp. in Nairobi, Kenya, by V. G. L. van Someren.

Tribe Gastrozonini

To the genera included in this tribe by Hancock (1985a) should be added *Anoplomus* Bezzi, *Carpophthorella* Hendel, *Chaetellipsis Bezzi* (= *Podophysa* Hering), *Chelyophora* Rondani, *Polyara* Walker, *Polyaroides* Hardy, *Pseudacrotoxa* Hering and *Sinanoplomus* Zia. Species of *Polyara* have either 4 or 6 scutellar bristles, providing further evidence of the inappropriateness of this character for defining tribes. *Clinotaenia magniceps* (Bezzi) has been bred from the stems of *Panicum* (Gramineae) (I. M. White, personal communication), confirming the placement of this African genus in the Gastrozonini. *Enicoptera* Macquart and *Chaetellipsis* breed in bamboo shoots in Malaysia (C. S. Ooi, personal communication).

Subfamily TRYPETINAE

For earlier notes on classification and keys to African genera in this subfamily see Hancock (1985b, 1986).

Tribe Trypetini

The following genera should be added to the list of those referred to this tribe by Hancock (1986): *Carpomya* Costa, *Cryptodacus* Hendel, *Platyparea* Loew, *Strauzia* Robineau-Desvoidy, *Cryptaciura* Hendel, *Aciuropsis* Hardy, *Tarphobregma* Hardy, *Cristobalia* Malloch, *Paracristobalia* Hardy, *Lalokia* Hardy. The following should be removed: *Epochra* Loew, *Hexaresta* Hering, *Piestometopon* de Meijere, *Polionota* Wulp, *Tomoplagia* Coquillett, *Mylogymnocarena* Foote, *Gymnocarena* Hering. With the exception of *Hexaresta*, which belongs in the Oriental Acanthonevrini and *Epochra* and *Piestometopon*, which belong in the Euphrantini, these latter genera belong in the Tephritinae (Norrbom 1987, 1990). *Acidoxantha* Hendel and *Craspedoxanthitea* Hardy, referred to the Trypetini by Hardy (1987) belong in the Ceratitini (Ceratitinae), together with *Acidoxanthopsis* Hering and *Anastrephoides* Hendel; all probably breed in the buds of large flowers. The peculiar genus *Tanaodema* Hardy appears to belong in the Tephritinae; it lacks distinct scapular

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bristles and mesopleural suture and has a blunt anal cell. *Alincocallistomyia* Hardy, despite the presence of 6 scutellar bristles, has an apically pointed aculeus and may also belong in the Trypetini.

Hardy (1987) further clarified the problems surrounding the definition of the genus *Myoleja* Rondani, including as synonyms *Acidiella* Hendel, *Philophylla* Rondani and *Hendelina* Hardy. As a result, the two Afrotropical species formerly included in *Euleia* Walker are here transferred to *Myoleja*. These are *M. fossataeformis* (Bezzi), **comb. nov.** and *M. inconspicua* (Hancock), **comb. nov.** It is likely that further studies will result in subdivision of this genus, but its relationships with other genera, particularly *Anomoia* Walker and *Hoplandromyia* Bezzi, still need to be determined.

The larval habits are varied in *Myoleja*. Species allied to *M. lucida* (Fallen) infest the berries of *Lonicera* (Caprifoliaceae) and *Ilex* (Aquifoliaceae). Those allied to *M. longipennis* (Hendel) infest the fruit of various genera of Araliaceae; in Malaysia, *M. mimica* (Hardy) breeds in fruits of *Schefflera subulata*. Of the Afrotropical species, *M. fossataeformis* and *M. inconspicua* appear to be related to *M. caesio* (Harris), which mines the petioles of Urticaceae, whilst the remainder appear to be related to *M. superfluctа* (Enderlein), which attacks the developing seeds of *Clerodendron* (Verbenaceae). *Anomoia kraussi* Hardy breeds in the fruit of *Gmelina* (Verbenaceae), probably also attacking the developing seeds, and providing further evidence of a link between these two genera.

In Java, *M. alboscutellata* (van der Wulp) bores in green twigs of coffee (Rubiaceae). This species appears to be related to the *M. disjuncta* complex of Hardy (1987), where males of an undescribed species from Malaysia have the inferior orbital bristles situated on a pair of prominent conical projections, with the upper pair of bristles large and horn-like as in *Hoplandromyia;* there are also similarities in wing pattern between these two groups.

One species of *Carpomya (C. incompleta* (Becker)) occurs in northeast Africa (Egypt, Sudan and Ethiopia), where it infests the fruit of *Ziziphus* (Rhamnaceae). Although it resembles species of Ceratitinae and has only two spermathecae, these and the shape of the anal cell are typically trypetine in appearance. It is related to *Myiopardalis* Bezzi and *Goniglossum* Rondani (Norrbom 1989). *Baryglossa tersa* Munro breeds in the flowers of Cucurbitaceae in Kenya.

Cryptaciura has sometimes been included in the Aciurinae or Tephritinae but the larvae are leaf-miners in Umbelliferae. Species of *Acidia* Robineau-Desvoidy and *Hemilea* Loew are known to mine the leaves of Compositae and Araliaceae respectively. *Tarphobregma* breeds in the fruit of *Pandanus*, whilst *Chetostoma* Rondani breeds in the fruit of *Lonicera* (Caprifoliaceae) and *Platyparea* bores in stems of *Campanula* (Campanulaceae). A previous host record of *Callistomyia* Bezzi from fruit of Barringtoniaceae is now known to be an error (Smith *et al.* 1988); all known hosts of this genus belong in the Rutaceae.

In order to accommodate *Carpomya* and the new species of *Taomyia* Bezzi described below, the key to the genera of Trypetinae provided by Hancock (1986) requires modification. Accordingly, couplet 19 onwards should read as follows.

Key to Afrotropical genera of Trypetini

19 Six scutellar bristles; 2 inferior orbital bristles ..... *Baryglossa* Bezzi
— Four scutellar bristles; 3 inferior orbital bristles 20
20 Third antennal segment dorsoapically pointed; postscutellum yellow with large lateral black spots; wing with 3 pale brownish-yellow transverse bands (in African species) .....
..... *Carpomya* Costa

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— Third antennal segment apically rounded; postscutellum and wing not as above 21
21 Wing with two hyaline indentations in marginal cell, crossing vein R_{2+3} 22
— Wing with none or a single hyaline indentation from costa in marginal cell, usually not reaching vein R_{2+3} 23
22 One superior orbital bristle; inferior orbital bristles horn-like in male, normal in female; ocellar bristles absent; medial band of wing absent ..... *Hoplandromyia* Bezzi
— Two superior orbital bristles; inferior orbital bristles normal in both sexes; ocellar bristles present but often much reduced; medial band of wing present (except in one species) .... *Myoleja* Rondani
23 Dorsocentral bristles placed close to line of anterior supra-alars; wings narrow, largely brown on anterior half with a small hyaline indentation in marginal cell ..... *Hemilea* Loew
— Dorsocentral bristles placed well behind line of anterior supra-alars, close to prescutellars; wings not as above 24
24 Wing bands longitudinal, without a large rounded discal patch 25
— Wing bands transverse or with a large rounded discal patch 26
25 Bristles whitish; ocellar bristles absent; arista pubescent; stigma short, as long as wide ... . *Notommoides* Hancock
— Bristles red-brown; ocellar bristles present; arista bare; stigma elongate, twice as long as wide ..... *Notomma* Bezzi
26 Wing with 3 narrow transverse dark bands and with the broad hyaline indentation from costa in marginal cell reaching hind margin of wing, crossing discal cell; middle scapular bristles present ..... *Scleropithus* Munro
— Wing with a large rounded discal patch and curved bands and with the hyaline indentation from costa, when present, not entering discal cell; middle scapular bristles absent .... *Taomyia* Bezzi

Genus ***Taomyia*** Bezzi

Taomyia Bezzi, 1920: 240.

Type-species *Taomyia marshalli* Bezzi, 1920, by original designation.

This genus was known previously from Africa, Madagascar and the Seychelles. One species, *T. marshalli* Bezzi, was bred from the fruit of *Sansevieria* and *Dracaena* (both Agavaceae) in Kenya, by V. G. L. van Someren. The discovery of a new species from Mauritius is of interest from a biogeographical viewpoint, especially as it appears to be most closely related to *T. ocellata* (Lamb) from the Seychelles. The four species may be identified by the following key.

Key to species of *Taomyia* Bezzi

1 Wing with a hyaline band from before stigma to hind margin, separating the basal and discal dark areas 2
— Wing with hyaline band interrupted medially, the basal and discal dark areas joined 3
2 Thorax with yellow band on mesopleura not continued onto mesonotum above suture; wing markings largely blackish-brown; Africa ..... *marshalli* Bezzi
— Thorax with yellow band on mesopleura continued onto mesonotum above suture; wing markings largely yellow-brown; Madagascar ..... *pictipennis* Hancock
3 Mesonotum orange-brown; wing with costal band broad and free from discal rounded patch; no hyaline wedge in marginal cell from costa; Seychelles ..... *ocellata* (Lamb)
— Mesonotum blackish-brown; wing with costal band narrow and joined to discal rounded patch in marginal cell; a hyaline wedge across marginal cell from costa, reaching top of discal cell; Mauritius ..... *mauritiana* sp. nov.

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Taomyia mauritiana sp. nov., Fig. 1

This species resembles *T. ocellata* (Lamb) in having the basal and discal dark areas of the wing not separated by a complete hyaline band. It differs in the darker mesonotum and in the wing pattern. From all the other known species it differs in the presence of a hyaline indentation in the marginal cell. The specific name is derived from its country of origin.

FEMALE. Length of body (excluding ovipositor), 5,5 mm; of wing, 5,5 mm.

Head. Length: height: width: 1: 1,6: 1,8; fulvous. Frons narrowing slightly posteriorly, 0,34 times width of head at widest part, with fine pale pubescence; bristles black, 3 inferior orbitals, 2 superior orbitals. Lunule large, semicircular. Ocellar triangle black, ocellar bristles well developed; postocellars present. Vertex with inner and outer vertical bristles well developed, especially inner pair; postverticals present. Genal bristle present. Face unmarked. Antennae shorter than face, fulvous; third segment apically rounded; arista bare. Occiput flat, with a row of short dark occipital bristles.

Thorax. Mesonotum blackish-brown, with fine pubescence; humeral calli dark red-brown. Pleura dark red-brown except for a broad vertical whitish mesopleural stripe, extending across notopleural callus onto mesonotum along suture and ending in a blunt point at end of suture. Postnotum dark red-brown to black. Scutellum whitish except for a narrow red-brown basal band. Bristles well developed and black: 2 scapulars (middle pair absent), 1 humeral, 1 presutural, 2 notopleurals, 1 anterior supra-alar, 2 posterior supra-alars, 2 dorsocentrals, 2 prescutellars, 1 mesopleural, 1 pteropleural, 1 sternopleural, 4 scutellars; dorsocentrals placed well behind the line of the anterior supra-alars, closer to the prescutellars. Legs fulvous; fore femora with a row of black bristles beneath; middle tibiae with an apical black spine. Halteres fulvous. Wing (Fig. 1) with R_{4+5} setulose, r-m cross-vein a little beyond middle of discal cell, vein M_{1+2} curved downwards before r-m, i-m cross-vein almost at right angles to M_{1+2}, slightly curved outwards; pattern brown except yellow along costa, from base to end of anal cell and from stigma to vein R_{4+5}. Stigma brown along outer margin and pale yellowish centrally. Hyaline indentations in marginal cell to vein M_{1+2}, in costal cell and below,

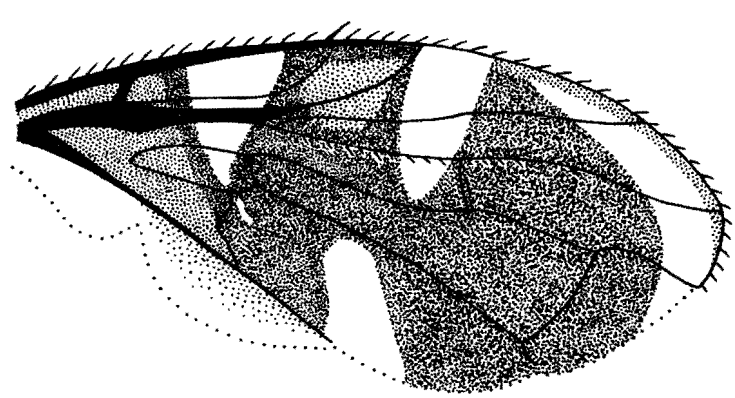

Fig. 1. *Taomyia mauritiana* **sp. nov.,** wing.

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in third posterior cell and subapically. Axillary cell and alula with a pale suffusion; anal cell acuminate.

Abdomen. Oval; red-brown with fine pubescence; sixth segment about half length of fifth, with dark marginal bristles. Oviscape red-brown, conical, length 0,85 mm; aculeus not exposed.

MALE. Unknown.

MATERIAL EXAMINED: Holotype ♀: MAURITIUS, Magenta, x.1972, J. Williams, sweeping shrubs. (In National Collection of Insects, Pretoria).

BIOLOGY. Unknown, but presumably breeds in the fruit of Agavaceae.

Tribe Rivelliomimini

This tribe was proposed by Hancock (1986) for two African and one Asian genus. *Ornithoschema* de Meijere,1914, from Indonesia to the Solomon Islands, is a senior synonym of *Cycasia* Malloch, 1942 (syn. nov.). Additional localities for *Rivelliomima punctiventris* Bezzi are Livingstone (Zambia) and Durban, Amazintoti, Hartbeespoort, Kidd's Beach (C. P.), Dewetsdorp (O. F. S.) (South Africa).

Tribe Acanthonevrini

Hexaresta Hering, 1941 is a senior synonym of *Hyponeothemara* Hardy, 1986 (Norrbom 1990); the original record of this genus from the Neotropics appears to be a locality error. Several other Oriental genera (*Alloeomyia* Hardy, *Anchiacanthonevra* Hardy, *Buloloa* Hardy, *Cheesmanomyia* Malloch, *Diarrhegmoides* Malloch, *Enoplopteron* de Meijere, *Gressittidium* Hardy, *Hemiclusiosoma* Hardy, *Emheringia* Hardy (= *Heringomyia* Hardy), *Kertesziola* Hering, *Lyronotum* Hering, *Mimoeuphranta* Hardy, *Neothemara* Malloch, *Nothoclusiosoma* Hardy, *Othniocera* Hardy, *Paedohexacinia* Hardy, *Paraphasca* Hardy, *Phasca* Hering, *Pseudacanthoneura* Malloch, *Pseudoneothemara* Hardy, *Quasirhabdochaeta* Hardy, *Saucromyia* Hardy, *Sophiropsis* Hardy, *Stigmatomyia* Hardy, *Termitorioxa* Hendel, *Themaroides* Hendel, *Themaroidopsis* Hering, *Walkeraitia* Hardy, *Agnostophana* Hering, *Homoiothemara* Hardy, *Proepacrocerus* Hardy, *Stymbara* Walker) were described or discussed by Hardy (1986a, 1988). *Nitobeia* Shiraki should be removed to the Phytalmiini, whilst *Pelmatops* Enderlein and *Pseudopelmatops* Shiraki should be removed to the Adramini (Hardy 1986b); these two genera have sclerotized postcoxal bridges and hairs on the pleuroterga. In the Oriental genus *Terastiomyia* the postcoxal bridge is partly sclerotized, but the aculeus is typically acanthonevrine in appearance and pleurotergal hairs are absent. *Griphomyia* Hardy, placed in the Trypetini by Hardy (1987), may also belong here; it shows some affinities with *Epacrocerus* Hardy and its allies. *Clusiomima* Malloch, *Matsumurania* Shiraki and *Phaeospila* Bezzi also are referrable to this tribe.

Species of *Acanthonevra* Macquart breed in bamboo shoots in Taiwan (Yen *et al.* 1979) and Malaysia; several other genera are also suspected of utilizing this host. *Cheesmanomyia* breeds in fruit of Moraceae and larvae of *Termitorioxa* occur in termite galleries.

Tribe Euphrantini

Ichneumonosoma de Meijere belongs in the Adramini (Hardy 1986b) but *Brandtomyia* Hardy and *Crinitisophira* Hardy, referred to the Adramini by Hardy (1986b),

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lack the sclerotized postcoxal bridge and may be better placed in the Euphrantini. *Piestometopon* de Meijere, which has pleurotergal hairs, also appears to belong here; so too does the American genus *Epochra* Loew (A. Freidberg and A. Norrbom, personal communications).

Coelotrypes major (Bezzi), *C. fasciolatus* (Loew), *C. ripleyi* Munro and *C. pulchellus* var. *deleta* Munro all breed in the buds of *Ipomoea* spp. in South Africa, the latter in *I. ergyrophyla*. *Conradtina suspensa* Bezzi is additionally recorded from Fort Portal, Uganda.

Species of *Ptilona* van der Wulp breed in bamboo stems in Taiwan (Yen *et al.* 1979).

Tribe Adramini

Following Hardy (1986b), the following genera are transferred to the Adramini: *Ichneumonosoma* de Meijere, *Pelmatops* Enderlein and *Pseudopelmatops* Shiraki. As a result, the presence of femoral spines is no longer a tribal characteristic. Hardy's (1986b) concept of the Adramini also includes genera here referred elsewhere. Only those genera with haired pleuroterga, sclerotized postcoxal bridges and an acuminate anal cell are considered to belong in the Adramini.

Tribe Phytalmiini

To this tribe is added *Nitobeia* Shiraki from Taiwan; it has a blunt anal cell on the wing. Hardy's (1987) 'genus near *Isoconia*' may also belong here.

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